

**Amendments to the Claims:**

**Claim 1 (Currently Amended)** A brake system for applying a braking force to a vehicle wheel responsive to a brake force control signal comprising:

a rotor connected for rotation with the vehicle wheel;

a plurality of hydraulic actuators for engaging the rotor to apply the braking force, each hydraulic actuator having:

a working inlet and a working outlet through which a working fluid can be pumped in and out, respectively, responsive to rotation of the rotor;

wherein the working inlets of the plurality of hydraulic actuators are interconnected and the working outlets of the plurality of hydraulic actuators are interconnected;

a brake control unit in fluid communication with [between] the working inlets and the working outlets, and operable [,] responsive to the brake force control signal in a brake-off position and a brake-on position, the [, between a] brake-off position [,] providing substantially unrestricted fluid communications between the working outlets and the working inlets [,] and the [a] brake-on position [,] providing restricted fluid communications between the working outlets and the working inlets in proportion to the brake force control signal; and

a by-pass valve in fluid communication with [between] the working outlets, [outlet and] the brake control unit and the working inlets, and operable in a by-pass off position and a by-pass on position, the [between a] by-pass off position [,] providing substantially unrestricted fluid communications between the working outlets and the brake control unit [,] and the [a] by-pass on position [,] providing substantially unrestricted fluid communications between the working outlets and the working inlets thereby by-passing and negating the effect of the brake control unit.

**Claim 2 (Original)** The brake system of claim 1, the rotor further comprising:

a substantially disc-shaped main body having two opposed faces; and

a cam surface on each of the two opposing faces;

wherein each of the plurality of hydraulic actuators engagable with one of the cam surfaces.

**Claim 3 (Original)** The brake system of claim 2, wherein each of the plurality of hydraulic actuators for engaging one of the cam surfaces engages a different portion of a profile of the cam surface.

**Claim 4 (Original)** The brake system of claim 2, wherein an equal number of the plurality of hydraulic actuators can engage each of a first and a second of the cam surfaces.

**Claim 5 (Original)** The brake system of claim 2, wherein each of the plurality of hydraulic actuators further comprises a rolling interface for engaging one of the cam surfaces with substantially no frictional resistance to rotation of the rotor relative to the actuator.

**Claim 6 (Original)** The brake system of claim 1, wherein the brake force control signal is selected from the group consisting of an electric signal, a hydraulic pressure signal and a pneumatic signal.

**Claim 7 (Original)** The brake system of claim 5, each of the plurality of hydraulic actuators further comprising:

- a hydraulic cylinder;
- a piston for reciprocating movement in the hydraulic cylinder and separating the hydraulic cylinder into a working cavity and an opposing cavity that expand and contract in volume responsive to the back and forth movement of the piston;
- a plunger, connected to the piston, retracting into and extending from the hydraulic cylinder responsive to the reciprocating movement of the piston; and
- a resilient element biasing the plunger to extend from the hydraulic cylinder;

wherein the rolling interface is disposed at an end of the plunger extending from the hydraulic cylinder.

**Claim 8 (Original)** The brake system of claim 7, each of the plurality of hydraulic actuators further comprising a flow direction valve, operable between an actuator-engaged position and an actuator-retracted position, controlling fluid communication between the working cavity and the opposing cavity and between the working cavity and the brake control unit;

wherein the hydraulic actuator is free to engage the rotor when the flow direction valve is in the actuator-engaged position and the hydraulic actuator is retained from engagement when the rotor with the flow direction valve is in the actuator-retracted position.

**Claim 9 (Original)** The brake system of claim 8, wherein the flow direction valve is operated into the actuator-engaged position and the actuator-retracted position responsive to the brake control unit being operated into the brake-on position and the brake-off position respectively.

**Claim 10 (Currently Amended)** A brake system comprising:

a rotor connected for rotation with a vehicle wheel; and

a plurality of brake sub-systems each having:

a hydraulic actuator engagable with the rotor for applying a brake force having:

a working inlet and a working outlet through which a working fluid can be pumped in and out, respectively, responsive to rotation of the rotor;

a brake control unit in fluid communication with [between] the working inlet and the working outlet, and operable [,] responsive to the brake force control signal in a brake-off position and a brake-on position, the [, between a] brake-off position [,] providing substantially unrestricted fluid communications between the working outlet and the working inlet [,] and the [a] brake-on position [,] providing restricted fluid communications between the working outlet and the working inlet in proportion to the brake force control signal; and

a by-pass valve in fluid communication with [between] the working outlet, [outlet and] the brake control unit and the working inlet, and operable in a by-pass off position and a by-pass on position, the [between a] by-pass off position [,] providing substantially unrestricted fluid communications between the working outlet and the brake control unit [,] and the [a] by-pass on position [,] providing substantially unrestricted fluid communications between the working outlet and the working inlet thereby by-passing and negating the effect of the brake control unit;

wherein the working inlets of the plurality of brake sub-systems are interconnected and the working outlets of the plurality of brake sub-systems are interconnected.

**Claim 11 (Original)** The brake system of claim 10, the rotor further comprising:

a substantially disc-shaped main body having two opposed faces; and  
a cam surface on each of the two opposing faces;  
wherein each of the hydraulic actuators engageable with one of the cam surfaces.

**Claim 12 (Original)** The brake system of claim 11, wherein each of the hydraulic actuators for engaging one of the cam surfaces engages a different portion of a profile of the cam surface.

**Claim 13 (Original)** The brake system of claim 11, wherein an equal number of the hydraulic actuators can engage each of a first and a second of the cam surfaces.

**Claim 14 (Original)** The brake system of claim 11, wherein each of the hydraulic actuators further comprises a rolling interface for engaging one of the cam surfaces with substantially no frictional resistance to rotation of the rotor relative to the actuator.

**Claim 15 (Original)** The brake system of claim 10, wherein the brake force control signal is selected from the group consisting of an electric signal, a hydraulic pressure signal and a pneumatic signal.

**Claim 16 (Original)** The brake system of claim 14, each of the hydraulic actuators further comprising:

a hydraulic cylinder;  
a piston for reciprocal movement in the hydraulic cylinder and separating the hydraulic cylinder into a working cavity and an opposing cavity that expand and contract in volume responsive to the back and forth movement of the piston;  
a plunger, connected to the piston, retracting into and extending from the hydraulic cylinder responsive to the reciprocal movement of the piston; and

a resilient element biasing the plunger to extend from the hydraulic cylinder;  
wherein the rolling interface is disposed at an end of the plunger extending from the hydraulic cylinder.

**Claim 17 (Original)** The brake system of claim 16, each of the hydraulic actuators further comprising a flow direction valve, operable between an actuator-engaged position and an actuator-retracted position, controlling fluid communication between the working cavity and the opposing cavity and between the working cavity and the brake control unit;  
wherein the hydraulic actuator is free to engage the rotor when the flow direction valve is in the actuator-engaged position and the hydraulic actuator is retained from engagement when the rotor with the flow direction valve is in the actuator-retracted position.

**Claim 18 (Original)** The brake system of claim 17, wherein the flow direction valve is operated into the actuator-engaged position and the actuator-retracted position responsive to the brake control unit being operated into the brake-on position and the brake-off position respectively.